Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1 – 18. (canceled)

Claim 19. (currently amended) A ~~microfabricated fluidic logic~~ microfluidic device, comprising:

an elastomeric block comprising:

a first elastomeric layer having a recess formed therein, said recess having a dimension between 0.1. and 1000 μm;

a second elastomeric layer having a recess formed therein, said recess having a dimension between 0.1 μm and 1000 μm, wherein said first elastomeric layer and said second elastomeric layer are bonded together through complimentary bonds between the first elastomeric layer and the second elastomeric layer;

an input channel; ~~and~~

an output channel; and

a first microfabricated fluidic switch, wherein the microfabricated fluidic logic device performs a logic function on an input signal in the input channel to provide an output signal in the output channel.

Amd 08/04

Claim 20. (original) The microfabricated fluidic logic device of claim ~~1~~ 19 wherein the output signal is the inverse of the input signal.

Claim 21. (original) The microfabricated fluidic logic device of claim ~~1~~ 19 wherein the microfabricated fluidic logic device is an OR gate.

Claim 22. (original) The microfabricated fluidic logic device of claim ~~1~~ 19 wherein the microfabricated fluidic logic device is a NOR gate.

Claim 23. (original) The microfabricated fluidic logic device of claim ~~1~~ 19 wherein the microfabricated fluidic logic device is a AND gate.

Claim 24. (original) The microfabricated fluidic logic device of claim ~~1~~ 19 wherein the microfabricated fluidic logic device is a NAND gate.

Claim 25. (currently amended) The microfabricated fluidic logic device of claim ~~1~~ 19 wherein the microfabricated fluidic logic device is a flip-fl[[i]]op.

Claim 26. (original) The microfabricated fluidic logic device of claim ~~7~~ 25 wherein the flip-flop comprises first and second cross-coupled NAND gates.

Claim 27. (original) The microfabricated fluidic logic device of claim ~~8~~ 26 wherein each of the two NAND gates comprises two pressure actuated normally open switches coupled in parallel.

Claim 28. (original) The microfabricated fluidic logic device of claim ~~7~~ 25 wherein the flip-flop comprises first and second cross-coupled NOR gates.

Claim 29. (original) The microfabricated fluidic logic device of claim ~~10~~ 28 wherein the two NOR gates comprise two pressure actuated normally open switches coupled in series.

Claim 30. (original) The microfabricated fluidic logic device of claim ~~10~~ 28 further comprising:

first and second step pressure sources coupled to the flip-flop;

a second microfabricated fluidic switch coupled between the first step pressure source and the first NOR gate;

a third microfabricated fluidic switch coupled between the second step pressure source and the second NOR gate.

Claim 31. (original) The microfabricated fluidic logic device of claim ~~10~~ 28 further comprising:

a step pressure source comprising an output coupled to the flip-flop through second and third microfabricated fluidic switches; and

fourth and fifth microfabricated fluidic switches, each coupled between the output of the step pressure source and ambient exhaust.

Claim 32. (original) The microfabricated fluidic logic device of claim ~~13~~ 31 further comprising:

a first microfabricated fluidic capacitor coupled to an input of the first NOR gate and the gate of the fourth switch;

a second microfabricated fluidic capacitor coupled to an input of the second NOR gate and the gate of the fifth switch;

a first fluidic resistor coupled to the first capacitor; and

a second fluidic resistor coupled to the second capacitor.

4/4

Claim 33. (original) The microfabricated fluidic logic device of claim ~~10~~ 28 further comprising:

a step pressure source comprising an output coupled to the flip-flop through second and third microfabricated fluidic switches; and

a fourth microfabricated fluidic switch coupled between the output of the step pressure source and ambient exhaust, wherein the gate of the fourth switch is coupled to a clock signal.

Amc 08/04

Claim 34. (original) The microfabricated fluidic logic device of claim ~~1~~ 29 wherein the switch comprises a pressure actuated normally open switch.

Claims 35 – 58. (canceled)